

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

- 1 1. (previously presented) A method for detecting defects in a lithography mask blank,  
2 comprising:
  - 3 (a) applying a photoresist layer directly onto a reflective surface of the mask  
4 blank;
  - 5 (b) exposing the photoresist layer with radiation having a wavelength and angle of  
6 incidence such that the photoresist layer is fully exposed by the combination of direct  
7 radiation and reflected radiation from the mask blank in areas of the mask blank in which  
8 there are no defects;
  - 9 (c) developing the exposed photoresist layer to remove the fully exposed  
10 photoresist from the mask blank; and
  - 11 (d) detecting photoresist remaining on the mask blank after development of the  
12 photoresist layer to detect defects in the mask blank.
- 1 2. (original) The method of Claim 1 wherein the photoresist layer includes a photoresist  
2 material selected from the group of photoresist materials consisting of PMMA and UV-6.
- 1 3. (original) The method of Claim 1 wherein the photoresist layer includes a fluorescent  
2 material incorporated therein.
- 1 4. (original) The method of Claim 3 wherein detecting the photoresist remaining on the  
2 mask blank after development includes illuminating the mask blank to excite the fluorescent  
3 material in the photoresist remaining on the mask blank after development of the photoresist  
4 layer.
- 1 5. (original) The method of Claim 4 wherein detecting the photoresist remaining on the  
2 mask blank includes detecting the excited fluorescent material using an optical microscope.
- 1 6. (original) The method of Claim 1 wherein the mask blank is an EUV mask blank.

- 1 7. (original) The method of Claim 1 wherein exposing the photoresist layer includes  
2 exposing the photoresist layer with an X-ray radiation source.
- 1 8. (original) The method of Claim 7 wherein exposing the photoresist layer includes  
2 exposing the photoresist layer with a Cu K-alpha X-ray source.
- 1 9. (original) The method of Claim 1 wherein exposing the photoresist layer includes  
2 exposing the photoresist layer with an EUV radiation source.
- 1 10. (original) The method of Claim 1 wherein detecting the photoresist remaining on the  
2 mask blank includes detecting the photoresist remaining on the mask blank using an atomic  
3 force microscope.
- 1 11. (original) A method for detecting defects in an EUV lithography mask blank,  
2 comprising:  
3 (a) applying a photoresist layer including a fluorescent material incorporated  
4 therein to the EUV mask blank;  
5 (b) exposing the photoresist layer with radiation having a wavelength and angle of  
6 incidence such that the photoresist layer is fully exposed by the combination of direct and  
7 reflected radiation in areas of the mask blank in which there are no defects;  
8 (c) developing the exposed photoresist layer to remove the fully exposed  
9 photoresist from the EUV mask blank;  
10 (d) illuminating the mask blank to excite the fluorescent material in the  
11 photoresist remaining on the mask blank after development of the photoresist layer; and  
12 (e) detecting the illuminated photoresist remaining on the EUV mask blank after  
13 development of the photoresist layer to detect defects in the mask blank.
- 1 12. (original) The method of Claim 11 wherein the photoresist layer includes a  
2 photoresist material selected from the group of photoresist materials consisting of PMMA  
3 and UV-6.
- 1 13. (original) The method of Claim 11 wherein exposing the photoresist layer includes  
2 exposing the photoresist layer with an X-ray radiation source.
- 1 14. (original) The method of Claim 13 wherein exposing the photoresist layer includes  
2 exposing the photoresist layer with a Cu K-alpha X-ray source.

1 15. (original) The method of Claim 11 wherein detecting the photoresist remaining on  
2 the mask blank includes detecting the photoresist remaining on the mask blank using an  
3 optical microscope.

1 16. (previously presented) A method for detecting defects in a reflective material,  
2 comprising:

3 (a) applying a photoresist layer directly onto a reflective surface of the reflective  
4 material;

5 (b) exposing the photoresist layer with radiation having a wavelength and angle of  
6 incidence such that the photoresist layer is fully exposed by the combination of direct  
7 radiation and reflected radiation from the reflective surface in areas of the reflective material  
8 in which there are no defects;

9 (c) developing the exposed photoresist layer to remove the fully exposed  
10 photoresist from the reflective material; and

11 (d) detecting photoresist remaining on the reflective material after development of  
12 the photoresist layer to detect defects in the reflective material.

1 17. (original) The method of Claim 16 wherein the reflective material is an EUV  
2 lithography mask blank.

1 18. (original) The method of Claim 16 wherein detecting the photoresist remaining on  
2 the reflective material includes detecting the photoresist remaining on the reflective material  
3 using an atomic force microscope.

1 19. (original) The method of Claim 16 wherein detecting the photoresist remaining on  
2 the reflective material includes detecting the photoresist remaining on the reflective material  
3 using scattered light.

1 20. (original) The method of Claim 16 wherein the photoresist layer includes a  
2 fluorescent material incorporated therein.

1 21. (original) The method of Claim 20 wherein detecting the photoresist remaining on  
2 the reflective material after development includes illuminating the reflective material to  
3 excite the fluorescent material in the photoresist remaining on the mask blank after  
4 development of the photoresist layer.

1 22. (canceled)

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1 23. (canceled)